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MAINE STATE COLLEGE

AGRICULTURAL EXPERIMENT STATION.

BULLETIN NO. 30.

OCTOBER 1896.

FERTILIZER INSPECTION.



Requests for the publications of the Station should be addressed to the

AGRICULTURAL EXPERIMENT STATION,

Orono, Maine.

MAINE STATE COLLEGE

AGRICULTURAL EXPERIMENT STATION.

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INSPECTION OF FERTILIZERS.

CHAS. D. WOODS, Director.

J. M. BARTLETT, L. H. MERRILL, Chemists.

The law regulating the sale of commercial fertilizers in this State calls for two bulletins each year. The first of these contains the analyses of the samples received from the manufacturer, guaranteed to represent, within reasonable limits, the goods to be placed upon the markets later. The second bulletin contains the analyses of the samples collected in the open market by a representative of the Station.

The analyses of the manufacturer's samples for this year were published March 11. The present bulletin contains the analyses of the Station samples and of such of the manufacturer's samples as were received after Bulletin 25 was issued.

The schedule of trade values of fertilizing ingredients given in the table below was adopted last March by the experiment stations of Connecticut, Massachusetts, Rhode Island and New Jersey. It represents the retail prices at which these ingredients could then be purchased in the various forms mentioned. On account of the greater distance from the large markets the prices for this State would probably be a little higher than those quoted.

TRADE VALUES OF FERTILIZING INGREDIENTS FOR 1896.

	Cts. per lb.
Nitrogen in ammonia salts.....	15
nitrates	13½
Organic Nitrogen in dry and fine ground fish, meat and blood and in mixed fertilizers.....	14
in cotton seed and linseed meal.....	12
in fine bone and tankage	13½
in fine-medium bone and tankage.....	12
in medium bone and tankage.....	9
in coarser bone and tankage.....	3
Phosphoric acid, water-soluble.....	5½
citrate-soluble.....	5
of dry, fine ground fish, bone and tankage.....	5
of fine-medium bone and tankage.....	4
of medium bone and tankage.....	2½
of coarse bone and tankage.....	2

Phosphoric Acid, of fine ground fish, cotton seed meal, castor pomace and wood ashes.....	4½
of mixed fertilizers, insoluble in ammonium citrate.....	2
Potash as high-grade sulphate and in forms free from muriate (or chlorides).....	5
as muriate.....	4½

It has not been the policy of this Station for some years to give the "Station Valuations" of the fertilizers analyzed. These valuations may, however, be calculated approximately by the use of the following brief rule.

Multiply 2.8 by the percentage of nitrogen.

Multiply 1.1 by the percentage of available phosphoric acid.

Multiply 0.4 by the percentage of insoluble phosphoric acid.

Multiply 1.0 by the percentage of potash.

The sum of these four products will be the commercial valuation per ton on the basis taken.

Illustration. The table of analyses shows a certain fertilizer to have the following composition: Nitrogen 2.00%; Available Phosphoric Acid 8.50%; Insoluble Phosphoric Acid, 3.50%; Potash 3.25%. The valuation in this case will be computed thus:

Nitrogen, 2.8×2.00 ,	5.60
Available Phosphoric Acid, 1.1×8.50 ,	9.35
Insoluble Phosphoric Acid, 0.4×3.50 ,	1.40
Potash, 1.0×3.25 ,	3.25
Valuation per ton,	<hr/> \$19.60

Since this rule assumes all the nitrogen to be organic and all the potash to be in the form of the sulphate, it is evident that the valuations thus calculated must not be taken as the only guide in the choice of a fertilizer. At best the valuations can only serve to show the approximate cost of the several ingredients contained in the fertilizer in question. In every case the farmer should consider the *needs* of his soil before he begins to consider the cost. In many instances a little careful experimenting will show him that materials containing either nitrogen, potash or phosphoric acid alone will serve his purpose as fully as a "complete fertilizer," in which he must pay for all three constituents, whether needed or not.

When a complete fertilizer is required, it is doubtful if the small consumer can do better than to purchase one of the many

good brands to be found in the market, rather than to attempt mixing the materials himself. The manufacture of complete fertilizers is seldom profitable on a small scale.

The arrangement of the tables is as follows :

Table I. Description of Manufacturer's Samples.

“ II. Analyses of Manufacturer's Samples.

“ III. Description of Station Samples.

“ IV. Analyses of Station Samples.

“ V. Comparison of Guarantee, Manufacturer's Samples and Station Samples.

An inspection of Table V. shows that in most cases the goods placed upon the market compare favorably with the guarantees and with the manufacturer's samples. It is well to note, however, that when the manufacturers give both a maximum and minimum guarantee, it is, in nearly every case, the minimum guarantee that most nearly represents the composition of the fertilizer. Only the minimum guarantees are given in this bulletin.

The number of brands of fertilizers sold in this State seems to be steadily on the increase. In 1894 the Station agent collected 60 brands ; last year he collected 74 ; this year the number has risen to 117. Seventy-seven of these brands were licensed. The remaining forty, according to the representations of the manufacturers, were sold in small quantities only.

Very few samples of unlicensed brands have been received from the manufacturers, they evidently believing that no such sample was required by law. An examination of Section 2 of the law in question will show, however, that a sample accompanied by a certificate of composition is required of every brand sold in the State, the price of which exceeds ten dollars per ton, without regard to the amount actually sold, unless under certain conditions the manufacturer shall be released from such obligation by the Director of the Experiment Station.

Owing to the fact that the law is a new one and that some misunderstanding seems to have existed with regard to its requirements, considerable latitude has been allowed in its interpretation. An effort will be made in the future to secure its full enforcement.

TABLE I.
DESCRIPTIVE LIST OF MANUFACTURERS' SAMPLES, 1896.*

Station Number.	Brand.	Manufacturer or Dealer.	Place of Business.
1569	Big Bonanza Fertilizer.	Walker, Stratman & Co.	Allegheny City, Penn.
1549	English Lawn Fertilizer	Bradley Fertilizer Co.	Boston, Mass.
1568	Essex XXX Fish and Potash.	Russia Cement Co.	Gloucester, Mass.
1570	Four-Fold Fertilizer	Walker, Stratman & Co.	Allegheny City, Penn.
1552	Grange Chemicals No. 2.	Cleveland Dryer Co.	Boston, Mass.
1554	High Grade Farmer's Friend.	Read Fertilizer Co.	Syracuse, N. Y.
1556	Lister's Animal Bone and Potash.	Lister's Agr. Chemical Works.	Newark, N. J.
1557	Lister's Celebrated Corn Manure.	"	"
1558	Lister's Corn Fertilizer No. 2	"	"
1559	Lister's Lawn Fertilizer.	"	"
1560	Lister's Potato Fertilizer No. 2	"	"
1561	Lowell Animal Fertilizer	Lowell Fertilizer Co.	Lowell, Mass.
1563	Lowell Bone Fertilizer.	"	"
1563	Lowell Dissolved Bone and Potash.	"	"
1564	Lowell Potato Phosphate.	"	"
1565	Lowell Vegetable and Vine.	"	"
1551	Maine State Grange Chemicals No. 1.	Cleveland Dryer Co.	Boston, Mass.
1553	Maine State Grange Seeding Down Fertilizer.	"	"
1571	Meadow King Fertilizer.	Walker, Stratman & Co.	Allegheny City, Penn.
1548	Original Coe's Phosphate.	Bradley Fertilizer Co.	Boston, Mass.
1566	Packer's Union High Grade Animal Corn Fertilizer.	Packer's Union Fertilizer Co.	New York, N. Y.
1567	Packer's Union High Grade Potato Manure.	"	"
1572	Potato Special Fertilizer.	Walker, Stratman & Co.	Allegheny City, Penn.
1550	Sea Fowl Guano.	Walker, Stratman & Co.	Boston, Mass.
1573	Smoky City Fertilizer	Read Fertilizer Co.	Allegheny City, Penn.
1555	Vegetable and Vine.	"	Syracuse, N. Y.

* Received after March 15, 1896.

TABLE IV.
ANALYSES OF STATION SAMPLES.

Station Number.	Brand.	Moisture.	Nitrogen.	Phosphoric Acid.					Potash.	Station Number.
				Soluble.	Reverted.	Insoluble.	Available.	Total.		
1453	Americus Corn Phosphate.....	11.72	2.21	4.61	4.17	1.62	8.78	10.40	2.81	1453
1441	Americus Brand Amm. Bone Superphosphate.....	16.15	2.85	7.16	2.15	1.39	9.31	10.70	2.22	1441
1455	Americus Potato and Cabbage Manure.....	16.10	2.33	5.98	3.15	.93	8.83	9.76	3.26	1455
1419	Bay State Fertilizer.....	10.40	2.67	6.95	2.91	1.60	9.86	11.46	2.14	1419
1436	Bay State Fertilizer G. G.....	12.83	2.39	4.38	4.50	2.10	8.88	10.98	2.07	1436
1438	Bay State Fertilizer Seeding Down.....	13.50	1.08	6.72	2.57	.70	9.29	9.99	1.93	1438
1523	Bowker's Acid Phosphate.....	13.50	.....	4.31	8.45	1.68	12.76	14.44	2.23	1523
1524	Bowker's Amm. Dissolved Bone.....	9.85	2.03	2.49	4.52	5.36	7.01	12.37	2.25	1524
1521	Bowker's Farm and Garden Phosphate.....	14.25	1.80	6.90	1.45	1.45	8.35	9.80	2.21	1521
1519	Bowker's Hill and Drill Phosphate.....	14.35	2.43	8.83	1.35	1.22	10.18	11.40	2.34	1519
1532	Bowker's Market Garden Fertilizer.....	9.45	2.48	1.32	3.16	5.37	4.48	9.85	10.11	1532
1520	Bowker's Potato Phosphate.....	12.95	1.79	6.54	1.72	1.50	8.26	9.76	2.26	1520
1423	Bowker's Potato and Vegetable Manure.....	12.82	2.34	4.49	6.62	.90	11.11	12.01	4.40	1423

DESCRIPTIVE LIST OF STATION SAMPLES—Continued.

Station Number.	Brand.	Manufacturer.	Sampled at	Station Number.
1422	Bowker's Six Per Cent Potato Fertilizer.....	Bowker Fertilizer Co.	Houlton	1422
1522	Bowker's Square Brand Bone and Potash.....	" "	Bangor.....	1522
1529	Bowker's Superphos. (with Potash) for Grass and Grain	" "	"	1529
1516	Bowker's Sure Crop Phosphate.....	" "	"	1516
1421	Bowker's Ten Per Cent Manure.....	" "	Houlton	1421
1425 } 1483 }	Bradley's Complete Manure for Potatoes and Vegetables	Bradley Fertilizer Co.....	{ Caribou	1425
1486	Bradley's Corn Phosphate.....	" "	Portland	1483
1506	Bradley's English Lawn Fertilizer.....	" "	Portland	1486
1480	Bradley's Eureka Fertilizer	" "	Bangor.....	1506
1485	Bradley's Original Coe's Phosphate.....	" "	Portland	1480
1482	Bradley's Potato Fertilizer.....	" "	"	1485
1481	Bradley's Potato Manure.....	" "	"	1482
1484	Bradley's Sea Fowl Guano	" "	"	1481
				1484

Station Number.	Brand.	Moisture.	Nitrogen.	Phosphoric Acid.					Potash.	Station Number.
				Soluble.	Reverted.	Insoluble.	Available.	Total.		
1422	Bowker's Six Per Cent. Potato Fertilizer.	9.90	1.01	4.48	4.02	3.13	8.50	11.63	5.99	1422
1522	Bowker's Square Brand Bone and Potash.	5.58	1.86	2.30	2.80	6.67	5.10	11.77	2.48	1522
1529	Bowker's Super. (with Potash) for Grass and Grain	11.55	.43	6.24	4.45	4.29	10.69	14.98	1.60	1529
1516	Bowker's Sure Crop Phosphate.	12.10	1.09	3.86	5.97	3.81	9.83	13.64	1.33	1516
1421	Bowker's Ten Per Cent. Manure.	7.80	1.09	2.94	2.73	3.98	5.67	9.65	9.92	1421
1425	Bradley's Complete Manure for Potatoes and Veg's	11.70	3.78	4.48	4.18	1.60	8.66	10.26	6.06	1425
1486	Bradley's Corn Phosphate.	16.67	2.16	4.29	4.89	2.58	9.18	11.76	2.01	1486
1506	Bradley's English Lawn Fertilizer.	6.75	5.49	1.57	3.52	1.43	5.09	6.52	2.54	1506
1480	Bradley's Eureka Fertilizer.	13.65	1.92	4.99	3.53	2.57	8.52	11.09	3.46	1480
1485	Bradley's Original Coe's Phosphate.	13.87	2.37	6.33	3.37	1.82	9.70	11.52	1.89	1485
1482	Bradley's Potato Fertilizer.	13.40	2.08	5.48	4.03	2.11	9.51	11.62	3.02	1482
1481	Bradley's Potato Manure.	16.50	2.94	3.06	2.83	1.41	5.89	7.30	5.98	1481
1484	Bradley's Sea Fowl Guano.	11.50	2.10	4.80	4.67	2.29	9.47	11.76	1.71	1484

DESCRIPTIVE LIST OF STATION SAMPLES—Continued.

Station Number.	Brand.	Manufacturer.	Sampled at	Station Number.
1424 } 1479 }	Bradley's XL Phosphate.....	Bradley Fertilizer Co.....	Caribou	{ 1424 1479 }
1544	Chittenden's Amm. Bone Phosphate.....	National Fertilizer Co.....	Presque Isle.....	1544
1546	Chittenden's Complete Fertilizer.....	" "	" "	1546
1545	Chittenden's Market Garden Fertilizer	" "	" "	1545
1446	Cleveland Fertilizer for All Crops.....	Cleveland Dryer Co.....	Portland	1446
1498	Cleveland High Grade Complete Manure for All Crops	" "	Bangor.....	1498
1417 } 1443 }	Cleveland Potato Phosphate.....	" "	Houlton.....	{ 1417 1443 }
1442	Cleveland Seeding Down Fertilizer.....	" "	Portland	1442
1439	Cleveland Superphosphate.....	" "	"	1439
1528	Crocker's Amm. Corn Phosphate.....	Crocker Fertilizer & Chemical Co.....	Bangor	1528
1527	Crocker's New Rival Amm. Superphosphate.....	" "	"	1527
1430	Crocker's Potato, Hop and Tobacco Phosphate.....	" "	Ft. Fairfield.....	1430
1447	Cumberland Concentrated Phosphate for Potatoes.....	Cumberland Bone-Phosphate Co.....	Portland	1447
1471	Cumberland Guano.....	" "	"	1471

Station Number.	Brand.	Moisture.	Nitrogen.	Phosphoric Acid.				Potash.	Station Number.
				Soluble.	Reverted.	Insoluble.	Available.	Total.	
1424	Bradley's XL Phosphate.....	12.90	2.64	6.27	3.62	1.88	9.89	11.77	1424
1544	Chittenden's Amm. Bone Phosphate.....	13.62	1.55	.41	9.42	1.42	9.83	11.25	1544
1546	Chittenden's Complete Fertilizer.....	13.42	3.04	3.66	5.64	.83	9.30	10.13	1546
1545	Chittenden's Market Garden Fertilizer.....	9.75	2.43	.47	6.95	2.43	7.42	9.85	1545
1446	Cleveland Fertilizer for All Crops.....	14.30	1.30	6.18	1.54	1.57	7.72	9.29	1446
1498	Cleveland High Grade Com. Manure for All Crops	10.62	3.81	3.84	4.27	1.60	8.11	9.71	1498
1417	Cleveland Potato Phosphate.....	13.20	2.19	6.82	2.57	1.54	9.39	10.93	1417
1442	Cleveland Seeding Down Fertilizer.....	11.10	1.96	5.87	2.50	1.20	8.37	9.57	1442
1439	Cleveland Superphosphate.....	13.21	2.33	5.48	3.23	2.15	8.71	10.86	1439
1528	Crocker's Amm. Corn Phosphate.....	13.80	2.38	7.84	2.20	1.06	10.04	11.10	1528
1527	Crocker's New Rival Amm. Superphosphate.....	9.70	1.46	7.23	3.23	2.10	10.46	12.56	1527
1430	Crocker's Potato, Hop and Tobacco Phosphate.....	11.93	2.24	7.37	2.88	1.79	10.25	12.04	1430
1447	Cumberland Conc. Phosphate for Potatoes.....	12.25	3.20	3.30	7.69	2.23	10.99	13.22	1447
1471	Cumberland Guano.....	12.30	1.21	5.90	2.82	1.07	8.72	9.79	1471

Station Number.	Brand.	Moisture.	Nitrogen.	Phosphoric Acid.					Potash.	Station Number.
				Soluble.	Reverted.	Insoluble.	Available.	Total.		
1418	Cumberland Potato Fertilizer.....	11.62	2.20	5.63	3.99	2.49	9.62	12.11	3.02	1418
1444	Cumberland Seeding Down Fertilizer.....	10.90	1.45	4.85	2.93	1.30	7.78	9.08	2.31	1444
1451	Cumberland Superphosphate.....	14.05	2.23	6.42	2.66	2.32	9.08	11.40	1.96	1451
1500	Dirigo Fertilizer.....	8.40	1.69	2.98	4.44	4.98	7.42	12.40	4.12	1500
1515	E. Frank Coe's Amm. Bone Superphosphate.....	9.75	1.96	7.33	1.65	3.39	8.98	12.37	1.72	1515
1432	E. Frank Coe's Amm. Bone Standard Grade Super.	9.36	1.90	6.18	2.79	3.52	8.97	12.49	1.46	1432
1507	E. Frank Coe's Grass and Grain Fert.....	12.85	1.11	5.59	3.59	4.43	9.18	13.61	1.36	1507
1509	E. Frank Coe's Columbian Bone Superphosphate....	9.40	1.47	7.29	2.82	2.79	10.11	12.90	2.02	1509
1508	E. Frank Coe's Columbian Corn Phosphate.....	10.08	1.40	2.28	6.38	4.29	8.66	12.95	1.78	1508
1512	E. Frank Coe's Columbian Potato Fertilizer.....	9.67	1.50	6.01	2.57	4.06	8.58	12.64	2.15	1512
1514	E. Frank Coe's Ground Bone and Potash.....	7.13	2.49	.....	3.13	13.83	3.13	16.96	1.97	1514
1429	E. Frank Coe's High Grade Potato Fert.....	8.38	2.47	6.23	1.90	2.85	8.13	10.98	6.34	1429
1513	E. Frank Coe's Seeding Down and Top Dressing....	12.55	.20	8.19	3.58	2.51	11.77	14.28	1.89	1513
1431	E. Frank Coe's Special Potato Fertilizer.....	7.53	1.84	7.52	3.44	2.00	10.96	12.96	3.34	1431

Station Number.	Brand.	Moisture.	Nitrogen.	Phosphoric Acid.					Potash.	Station Number.
				Soluble.	Reverted.	Insoluble.	Available.	Total.		
1504	Essex Complete Manure for Corn, Grain and Grass	8.80	4.02	4.31	2.99	3.31	7.30	10.61	10.80	1504
1505	Essex Complete Manure for Potatoes and Roots....	7.08	3.47	4.40	2.53	3.10	6.93	10.03	10.03	1505
1502	Essex High Grade Superphosphate.....	10.27	2.90	7.51	2.35	2.87	9.86	12.73	5.91	1502
1503	Essex XXX Fish and Potash.....	8.40	2.05	4.26	4.62	6.78	8.88	15.66	2.24	1503
1488	Farmer's Friend.....	14.48	2.16	7.46	2.29	1.38	9.75	11.13	2.13	1488
1541	Farmer's Friend.....	10.35	3.19	.....	.....	6.88	.....	9.34	3.94	1541
1540	Farrar's Fertilizer.....	11.20	2.86	5.14	6.23	2.66	11.37	14.03	1.71	1540
1538	Farrar's Lawn Dressing.....	11.88	3.77	6.36	4.81	1.50	11.17	12.67	2.36	1538
1539	Farrar's Potato Manure.....	11.80	3.00	5.25	6.11	2.29	11.36	13.66	2.01	1539
1534	Fish, Bone and Potash.....	23.57	3.72	.....	2.78	.79	2.78	3.57	2.79	1534
1533	Fish Scrap No. 2.....	25.75	4.25	.....	2.43	.64	2.43	3.07	.30	1533
1470	Grass and Grain Fertilizer.....	12.45	1.19	6.65	2.79	.69	9.44	10.13	1.93	1470
1525	Great Eastern Corn Phosphate.....	12.20	3.71	.....	7.66	1.28	7.66	8.94	2.10	1525
1427	Great Eastern General Fertilizer.....	13.38	1.31	5.05	3.21	1.09	8.26	9.35	4.46	1427

DESCRIPTIVE LIST OF STATION SAMPLES—Continued.

Station Number.	Brand.	Manufacturer.	Sampled at	Station Number.
1531	Great Eastern Grass and Oats Fertilizer.....	Great Eastern Fertilizer Co.	Bangor.....	1531
1426	Great Eastern Potato Manure.....	" " " "	Caribou.....	1426
1440	Great Planet.....	Clark's Cove Fertilizer Co.....	Portland	1440
1487	High Grade Farmer's Friend	Read Fertilizer Co.....	"	1487
1435	King Philip Guano for Potatoes.....	Clark's Cove Fertilizer Co.....	"	1435
1464	Lister's Animal, Bone and Potash.....	Lister's Agr. Chemical Works.....	"	1464
1463	Lister's Celebrated Corn Manure.....	" " " "	"	1463
1466	Lister's Corn Fertilizer No. 2.....	" " " "	"	1466
1468	Lister's Lawn Fertilizer.....	" " " "	"	1468
1462	Lister's Potato Manure.....	" " " "	"	1462
1465	Lister's Potato Fertilizer No. 2.....	" " " "	"	1465
1434 } 1469 }	Lister's Special Potato Fertilizer.....	" " " "	{ Presque Isle	1434
1467	Lister's Success Fertilizer.....	" " " "	{ Portland	1469
1474	Lowell Animal Fertilizer.....	Lowell Fertilizer Co.....	Portland.....	1467
			"	1474

Station Number.	Brand.	Moisture.	Nitrogen.	Phosphoric Acid.					Potash.	Station Number.
				Soluble.	Reverted.	Insoluble.	Available.	Total.		
1531	Great Eastern Grass and Oats Fertilizer.....	11.92	.....	4.62	8.35	2.84	12.97	15.81	1.97	1531
1426	Great Eastern Potato Manure.....	12.80	2.11	6.55	2.72	.61	9.27	9.88	4.19	1426
1440	Great Planet.....	12.04	4.09	5.41	2.67	1.00	8.08	9.62	6.18	1440
1487	High Grade Farmer's Friend.....	10.90	3.19	3.93	1.87	1.27	5.80	7.07	9.85	1487
1435	King Phillip Guano for Potatoes.....	11.68	1.38	5.88	1.46	2.19	7.34	9.53	3.15	1435
1464	Lister's Animal Bone and Potash.....	14.00	.32	8.01	2.47	.92	10.48	11.40	3.45	1464
1463	Lister's Celebrated Corn Manure.....	13.05	3.80	7.16	.66	1.24	7.82	9.06	7.08	1463
1466	Lister's Corn Fertilizer No. 2.....	13.28	1.92	8.72	1.50	2.50	10.22	12.72	4.44	1466
1468	Lister's Lawn Fertilizer.....	10.60	2.09	5.09	2.17	.19	7.26	7.45	3.64	1468
1462	Lister's Potato Manure.....	13.05	3.80	7.27	.30	1.45	7.57	9.02	6.91	1462
1465	Lister's Potato Fertilizer No. 2.....	12.02	1.92	8.81	1.29	2.80	10.10	12.90	4.42	1465
1434	Lister's Special Potato Fertilizer.....	12.42	1.86	7.36	1.48	2.76	8.84	11.60	3.25	1434
1467	Lister's Success Fertilizer.....	11.77	1.58	8.66	1.97	2.29	10.63	12.92	1.97	1467
1474	Lowell Animal Fertilizer.....	9.07	2.78	5.95	7.40	2.68	13.35	15.63	3.96	1474

DESCRIPTIVE LIST OF STATION SAMPLES—Continued.

Station Number.	Brand.	Manufacturer.	Sampled at	Station Number.
1475	Lowell Bone Fertilizer.....	Lowell Fertilizer Co.....	Portland.....	1475
1477	Lowell Complete Manure for Potatoes and Vegetables..	" " " ".....	" ".....	1477
1472	Lowell Dissolved Bone and Potash.....	" " " ".....	" ".....	1472
1478	Lowell Lawn Dressing.....	" " " ".....	" ".....	1478
1473	Lowell Potato Phosphate.....	" " " ".....	" ".....	1473
1476	Lowell Vegetable and Vine.....	" " " ".....	" ".....	1476
1542	Nash's Pure Bone Meal.....	Nash Manufacturing Co.....	Orrington.....	1542
1452	Nobsque Guano.....	Pacific Guano Co.....	Portland.....	1452
1547	Otis Potato Fertilizer.....	S. G. Otis.....	Littleton.....	1547
1492	Practical Potato Special.....	Read's Fertilizer Co.....	Portland.....	1492
1454	Quinnipiac Market Garden Manure.....	Quinnipiac Company.....	" ".....	1454
1448	Quinnipiac Phosphate.....	" " " ".....	" ".....	1448
1457	Quinnipiac Potato Manure.....	" " " ".....	" ".....	1457
1428	Quinnipiac Potato Phosphate.....	" " " ".....	Houlton.....	1428

ANALYSES OF STATION SAMPLES—Continued.

Station Number.	Brand.	Moisture.	Nitrogen.	Phosphoric Acid.					Potash.	Station Number.
				Soluble.	Reverted.	Insoluble.	Available.	Total.		
1475	Lowell Bone Fertilizer.....	8.50	2.64	5.32	2.04	.69	7.36	8.05	4.00	1475
1477	Lowell Complete Manure for Potatoes & Vegetables	11.05	2.07	10.29	3.37	.68	13.66	14.84	5.42	1477
1472	Lowell Dissolved Bone and Potash.....	8.05	2.79	5.90	5.84	1.51	11.74	13.25	2.48	1472
1478	Lowell Lawn Dressing.....	8.12	3.34	7.56	.86	.20	8.42	8.62	7.49	1478
1473	Lowell Potato Phosphate.....	9.60	3.29	7.65	5.11	.92	12.76	13.68	3.56	1473
1476	Lowell Vegetable and Vine.....	8.70	3.48	6.08	6.28	.77	12.36	13.13	3.55	1476
1542	Nash's Pure Bone Meal.....	12.93	2.26	.....	.....	.....	.....	24.66	.....	1542
1452	Nobsque Guano.....	13.60	1.18	6.63	2.66	.77	9.29	10.06	1.87	1452
1547	Otis Potato Fertilizer.....	16.80	2.14	5.19	4.40	2.49	9.59	12.08	3.47	1547
1492	Practical Potato Special.....	12.98	1.05	3.08	1.75	.63	4.83	5.46	7.66	1492
1454	Quinnipiac Market Garden Manure.....	13.50	3.66	4.54	3.63	2.61	8.17	10.78	6.80	1454
1448	Quinnipiac Phosphate.....	15.90	2.38	6.91	2.27	1.27	9.18	10.45	2.08	1448
1457	Quinnipiac Potato Manure.....	15.02	2.74	6.40	1.49	.46	7.89	8.35	6.00	1457
1428	Quinnipiac Potato Phosphate.....	13.45	2.06	5.40	3.89	2.76	9.29	12.05	2.89	1428

DESCRIPTIVE LIST OF STATION SAMPLES—Continued.

Station Number.	Brand.	Manufacturer.	Sampled at	Station Number.
1450	Quinnipiac Potato and Tobacco Fertilizer.....	Lowell Fertilizer Co.....	Portland.....	1450
1456	Quinnipiac Seeding Down Manure.....	".....	".....	1456
1489	Read's Standard.....	Read Fertilizer Co.....	".....	1489
1461	Royal Bone Phosphate.....	Williams & Clark Fertilizer Co.....	".....	1461
1499	Sagadahoc Hill and Drill.....	Sagadahoc Fertilizer Co.....	Bangor.....	1499
1460	Soluable Pacific Guano.....	Pacific Guano Co.....	Portland.....	1460
1501	Special Potato Fertilizer.....	Sagadahoc Fertilizer Co.....	Bangor.....	1501
1445	Standard A. Brand.....	Standard Fertilizer Co.....	Portland.....	1445
1535	Standard Complete Manure.....	".....	Belfast.....	1535
1416	Standard Fertilizer.....	".....	Houlton.....	1416
1449	Standard Guano.....	".....	Portland.....	1449
1437	Standard Potato and Tobacco Fertilizer.....	".....	".....	1437
1526	Stockbridge Corn and Grain Manure.....	Bowker Fertilizer Co.....	Bangor.....	1526
1530	Stockbridge Pea and Bean Manure.....	".....	".....	1530

Station Number.	Brand.	Moisture.	Nitrogen.	Phosphoric Acid.				Potash.	Station Number.
				Soluble.	Reverted.	Insoluble.	Available.	Total.	
1450	Quinnipiac Potato and Tobacco Fertilizer.....	16.10	2.20	5.69	3.85	1.13	9.54	10.67	1450
1456	Quinnipiac Seeding Down Manure.....	13.70	1.21	5.97	2.47	1.41	8.44	9.85	1456
1489	Read's Standard.....	15.45	1.14	6.81	1.57	.81	8.38	9.19	1489
1461	Royal Bone Phosphate.....	13.12	1.22	6.92	2.47	.70	9.39	10.09	1461
1499	Sagadahoc Hill and Drill.....	9.30	2.45	3.70	4.73	4.17	8.43	12.60	1499
1460	Soluble Pacific Guano.....	15.40	2.26	7.09	2.16	1.02	9.25	10.27	1460
1501	Special Potato Fertilizer.....	11.80	2.21	4.22	2.92	2.48	7.14	9.62	1501
1445	Standard A Brand.....	14.28	1.28	5.85	2.94	.54	8.79	9.33	1445
1535	Standard Complete Manure.....	10.55	4.04	5.28	1.64	2.78	6.92	9.70	1535
1416	Standard Fertilizer.....	12.80	2.23	5.49	3.85	2.58	6.34	11.92	1416
1449	Standard Guano.....	13.32	1.52	4.70	3.14	1.41	7.84	9.25	1449
1437	Standard Potato and Tobacco Fertilizer.....	15.48	2.26	7.06	1.94	1.45	9.00	10.45	1437
1526	Stockbridge Corn and Grain Manure.....	11.58	3.54	7.30	2.17	1.58	9.47	11.05	1526
1530	Stockbridge Pea and Bean Manure.....	8.80	2.93	5.27	2.21	4.48	7.48	11.96	1530

DESCRIPTIVE LIST OF STATION SAMPLES—Continued.

Station Number.	Brand.	Manufacturer.	Sampled at	Station Number.
1518	Stockbridge Potato and Vegetable Manure.....	Bowker Fertilizer Co.	Bangor	1518
1536	Stockbridge Seeding Down Manure.....	" "	Belfast.....	1536
1537	Stockbridge Top Dressing Manure.....	" "	"	1537
1490	Sure Catch.....	Read Fertilizer Co.....	Portland	1490
1491	Vegetable and Vine.....	Read Fertilizer Co.....	"	1491
1458	Williams & Clark Potato Phosphate	Williams & Clark Fertilizer Co.....	"	1458

ANALYSES OF STATION SAMPLES—Continued.

Station Number.	Brand.	Moisture.	Nitrogen.	Phosphoric Acid.					Potash.	Station Number.
				Soluble.	Reverted	Insoluble.	Available.	Total.		
1518	Stockbridge Potato and Vegetable Manure.....	8.72	2.34	4.87	1.24	4.93	6.11	11.04	11.83	1518
1536	Stockbridge Seeding Down Manure.....	8.00	2.55	5.40	6.28	1.06	11.68	12.74	9.49	1536
1537	Stockbridge Top Dressing Manure.....	7.35	4.21	4.18	1.32	5.12	5.50	10.62	4.83	1537
1490	Sure Catch.....	13.70	.25	2.71	3.21	.77	5.92	6.69	3.59	1490
1491	Vegetable and Vine.....	12.35	1.73	3.98	2.70	.91	6.68	7.59	8.42	1491
1458	Williams & Clark Potato Phosphate.....	14.40	2.97	6.29	1.62	1.16	7.91	9.07	5.88	1458

TABLE V.
COMPARISON OF GUARANTEES, MANUFACTURER'S SAMPLES AND STATION SAMPLES.

Brand.	Nitrogen.			Available Phosphoric Acid.			Potash.		
	% Guarantee.	% Manufacturer's Sample.	% Station Sample.	% Guarantee.	% Manufacturer's Sample.	% Station Sample.	% Guarantee.	% Manufacturer's Sample.	% Station Sample.
Americus Potato and Cabbage Manure.....	2.06	.....	2.33	8.00	.....	8.83	3.00	.....	3.26
Bay State Bone Superphosphate.....	2.00	2.03	.....	9.00	8.97	.....	1.85	1.79	.....
Bay State Fertilizer.....	2.47	2.72	2.67	9.00	9.67	9.86	2.00	2.65	2.14
Bay State Fertilizer G. G.....	1.85	2.36	2.39	8.50	9.72	8.88	2.00	2.62	2.07
Bay State Fertilizer Seeding Down.....	1.03	2.33	1.08	8.00	9.73	9.29	2.00	2.59	1.92
Bowker's Ammoniated Dissolved Bone.....	1.65	1.88	2.03	8.00	7.83	6.81	2.00	2.17	2.25
Bowker's Farm and Garden Phosphate.....	1.64	1.86	1.80	8.00	8.28	8.35	2.00	2.27	2.21
Bowker's Hill and Drill Phosphate.....	2.50	2.60	2.43	9.00	9.23	10.18	2.00	2.52	2.34
Bowker's Market Garden Fertilizer.....	2.40	.....	2.48	6.00	.....	4.48	10.00	.....	10.11
Bowker's Potato Phosphate.....	1.65	.....	1.79	9.00	.....	8.26	2.00	.....	2.26
Bowker's Potato and Vegetable Manure.....	2.50	2.54	2.34	8.00	6.33	11.11	4.00	4.24	4.40

Brand.	Nitrogen.			Available Phosphoric Acid.			Potash.		
	Guarantee.	Manufacturer's Sample.	Station Sample.	Guarantee.	Manufacturer's Sample.	Station Sample.	Guarantee.	Manufacturer's Sample.	Station Sample.
	%	%	%	%	%	%	%	%	%
Bowker's Six Per Cent. Potato Fertilizer.....	.75	1.01	1.01	7.00	7.85	8.50	6.00	6.38	5.99
Bowker's Sure Crop Phosphate.....	.75	1.02	1.09	8.00	7.84	9.83	1.00	1.16	1.33
Bowker's Ten Per Cent. Manure.....	.75	.....	1.09	6.00	.....	5.67	10.00	.....	9.92
Bradley's Complete Manure for Potatoes and Vegetables...	3.73	4.10	3.78	8.00	9.44	8.66	6.00	7.16	6.06
Bradley's Corn Phosphate.....	2.06	2.59	2.16	9.00	10.57	9.18	1.50	1.68	2.01
Bradley's English Lawn Fertilizer	4.93	5.35	5.49	5.00	7.04	5.09	2.50	3.61	2.54
Bradley's Eureka Fertilizer	1.65	2.00	1.92	5.00	7.93	4.52	2.00	1.95	3.46
Bradley's Original Coe's Phosphate.....	2.05	2.55	2.37	8.00	8.64	9.70	1.00	2.09	1.89
Bradley's Potato Fertilizer.....	2.06	2.11	2.08	9.00	10.67	9.51	3.24	3.07	3.02
Bradley's Potato Manure.....	2.47	2.61	2.94	6.00	7.31	5.89	5.00	5.43	5.98
Bradley's Sea Fowl Guano	2.05	2.90	2.10	8.00	9.41	9.47	1.50	1.73	1.71
Bradley's XL Phosphate.....	2.47	2.70	2.64	9.00	11.13	9.89	2.00	2.27	2.34

COMPARISON OF GUARANTEES, MANUFACTURER'S SAMPLES AND STATION SAMPLES—Continued.

Brand.	Nitrogen.			Available Phosphoric Acid.			Potash.		
	% Guarantee.	% Manufacturer's Sample.	% Station Sample.	% Guarantee.	% Manufacturer's Sample.	% Station Sample.	% Guarantee.	% Manufacturer's Sample.	% Station Sample.
Chittenden's Amm. Bone Phosphate	1.65	.....	1.55	7.06	.....	9.83	2.00	.....	2.15
Chittenden's Market Garden Fertilizer	2.45	.....	2.43	7.00	.....	7.42	6.00	.....	4.85
Cleveland Potato Fertilizer	2.06	2.16	2.19	8.00	10.47	9.39	3.00	3.21	3.18
Cleveland Seeding Down Fertilizer	1.65	1.65	1.96	5.00	9.14	8.37	2.00	2.23	2.30
Cleveland Superphosphate	2.06	2.39	2.33	9.00	9.89	8.71	2.00	2.71	2.05
Crocker's Amm. Corn Phosphate	2.00	1.96	2.38	10.00	10.53	10.04	1.60	1.72	1.83
Crocker's New Rival Amm. Superphosphate	1.20	1.00	1.46	10.00	11.07	10.46	1.60	1.57	1.92
Crocker's Potato, Hop and Tobacco Phosphate	2.00	2.04	2.24	10.00	10.34	10.25	3.25	3.65	3.68
Cumberland Potato Fertilizer	2.06	2.12	2.20	9.00	8.89	9.62	3.00	3.97	3.02
Cumberland Seeding Down Fertilizer	1.23	1.10	1.45	8.00	7.80	7.78	2.00	2.93	2.31
Cumberland Superphosphate	2.06	2.08	2.23	8.00	9.32	9.08	2.00	3.56	1.96
Dirigo Fertilizer .....	.....	1.82	1.69	6.00	5.22	7.42	3.50	3.62	4.12

Brand.	Nitrogen.			Available Phosphoric Acid.			Potash.		
	Guarantee. %	Manufacturer's Sample. %	Station Sample. %	Guarantee. %	Manufacturer's Sample. %	Station Sample. %	Guarantee. %	Manufacturer's Sample. %	Station Sample. %
E. Frank Coe's Amm. Bone Superphosphate.....	2.00	2.01	1.96	9.00	9.17	8.98	1.85	1.71	1.72
E. Frank Coe's Amm. Bone Standard Grade Superphos...	1.75	1.73	1.90	8.00	8.98	8.97	1.35	1.00	1.46
E. Frank Coe's Columbian Brand	1.20	1.22	.....	9.00	8.68	.....	1.85	1.82	.....
E. Frank Coe's High Grade Potato Fertilizer	2.40	2.13	2.47	8.00	8.68	8.13	6.00	5.14	6.34
E. Frank Coe's Special Potato Fertilizer	1.65	1.95	1.84	9.00	9.25	10.96	3.50	4.58	3.34
Essex Complete Manure for Corn, Grain and Grass.....	3.70	4.00	4.02	7.50	9.41	7.30	9.50	10.52	10.80
Essex Complete Manure for Potatoes and Roots.....	3.70	3.96	3.47	7.00	8.14	6.93	8.50	9.18	10.03
Essex High Grade Superphosphate.....	2.50	2.81	2.90	9.00	11.76	9.86	4.00	4.84	5.91
Essex XXX Fish and Potash	2.00	2.68	2.95	10.00	10.63	8.88	2.25	2.75	2.24
Farmer's Friend (Read's)	2.00	.....	2.16	9.00	.....	9.75	2.00	.....	2.13
Farmer's Friend (Nash's)	2.50	2.95	3.19	.....	1.57	2.46	4.50	4.48	3.94
Farrar's Fertilizer.....	2.50	2.56	2.86	9.50	11.50	11.37	2.00	1.63	1.71

COMPARISON OF GUARANTEES, MANUFACTURER'S SAMPLES AND STATION SAMPLES—Continued.

Brand.	Nitrogen.			Available Phosphoric Acid.			Potash.		
	Guarantee. %	Manufacturer's Sample. %	Station Sample. %	Guarantee. %	Manufacturer's Sample. %	Station Sample. %	Guarantee. %	Manufacturer's Sample. %	Station Sample. %
Farrar's Potato Manure.....	2.50	2.33	3.00	9.50	10.22	11.36	3.00	3.32	2.01
Fish, Bone and Potash	4.00	3.60	3.72	4.00	2.94	2.78	6.00	3.47	2.79
Fish Scrap No. 2.....	4.00	4.44	4.25	4.00	3.42	2.43	2.00	2.03	.30
Great Eastern Corn Phosphate.....	3.00	3.06	3.71	8.00	9.20	7.66	2.00	3.43	2.10
Great Eastern General Fertilizer.....	.80	1.10	1.31	8.00	9.94	8.26	4.00	4.72	4.46
Great Eastern Grass and Oats Fertilizer.....	.....	.....	.....	10.00	10.99	12.97	2.00	2.15	1.97
Great Eastern Potato Manure.....	2.50	2.35	2.11	8.00	10.04	9.27	4.00	5.71	4.19
Great Planet.....	3.30	.....	4.09	8.00	.....	8.08	7.00	.....	6.18
High Grade Farmer's Friend.....	3.30	3.13	3.19	6.00	4.93	5.80	10.00	10.92	9.85
King Philip Guano for Potatoes.....	1.23	1.79	1.38	6.50	8.26	7.34	3.00	3.66	3.15
Lister's Animal Bone and Potash.....	.....	.36	.32	9.00	9.97	10.48	5.00	5.07	3.45
Lister's Celebrated Corn Manure.....	3.70	4.34	3.80	7.50	8.33	7.82	7.00	7.11	7.08

Brand.	Nitrogen.			Available Phosphoric Acid.			Potash.		
	% Guarantee.	% Manufacturer's Sample.	% Station Sample.	% Guarantee.	% Manufacturer's Sample.	% Station Sample.	% Guarantee.	% Manufacturer's Sample.	% Station Sample.
Lister's Corn Fertilizer No. 2.....	1.81	2.34	1.92	9.25	10.63	10.22	4.00	4.21	4.44
Lister's Lawn Fertilizer.....	1.65	2.08	2.09	7.00	6.00	7.26	3.50	2.64	3.64
Lister's Potato Fertilizer No. 2.....	1.81	1.84	1.92	9.25	10.90	10.10	4.00	3.86	4.42
Lister's Special Potato Fertilizer.....	1.65	1.94	1.86	8.00	9.20	8.84	3.00	2.95	3.25
Lister's Success Fertilizer.....	1.24	1.62	1.58	9.50	9.38	10.63	2.00	2.20	1.97
Lowell Animal Fertilizer.....	2.48	3.52	2.78	7.00	10.98	13.35	4.00	3.81	3.96
Lowell Bone Fertilizer.....	2.48	2.77	2.64	5.00	8.74	7.36	3.00	3.42	4.00
Lowell Dissolved Bone and Potash.....	1.64	2.96	2.79	6.00	10.95	11.74	2.00	1.90	2.48
Lowell Potato Phosphate.....	3.29	3.75	3.29	7.00	9.93	12.76	6.00	6.25	3.56
Lowell Vegetable and Vine.....	2.48	3.06	3.48	7.00	11.05	12.36	6.00	6.72	3.55
Nobsque Guano.....	1.15	1.23	1.18	9.00	8.91	9.29	2.00	2.25	1.87
Otis Potato Fertilizer.....	2.00	.....	2.14	9.00	.....	9.59	3.00	.....	3.47

COMPARISON OF GUARANTEES, MANUFACTURER'S SAMPLES AND STATION SAMPLES—Continued.

Brand.	Nitrogen.			Available Phosphoric Acid.			Potash.		
	% Guarantee.	% Manufacturer's Sample.	% Station Sample.	% Guarantee.	% Manufacturer's Sample.	% Station Sample.	% Guarantee.	% Manufacturer's Sample.	% Station Sample.
Practical Potato Special.....	.88	1.20	1.05	4.00	4.94	4.83	8.00	8.35	7.66
Quinnipiac Market Garden Manure.....	3.30	3.89	3.66	8.00	9.43	8.17	7.00	7.47	6.80
Quinnipiac Phosphate.....	2.47	2.74	2.38	9.00	9.38	9.18	2.00	2.72	2.08
Quinnipiac Potato Manure.....	2.47	2.71	2.74	6.00	7.07	7.89	5.00	5.80	6.00
Quinnipiac Potato and Tobacco Fertilizer.....	2.06	.....	2.20	8.00	.....	9.54	3.00	.....	3.04
Quinnipiac Seeding Down Manure.....	.82	1.23	1.21	9.00	9.46	8.44	2.00	2.26	2.10
Read's Standard.....	.83	1.15	1.14	8.00	8.23	8.38	4.00	4.33	3.94
Royal Bone Phosphate.....	1.03	1.26	1.22	7.00	9.31	9.39	2.00	2.26	2.06
Sagadahoc Hill and Drill.....	2.50	2.22	2.45	8.00	9.24	8.43	4.50	4.53	3.06
Soluble Pacific Guano.....	2.27	2.37	2.26	8.50	9.15	9.25	2.00	2.61	2.11
Special Potato Fertilizer.....	3.00	.....	2.21	7.00	.....	7.14	8.00	.....	7.05
Standard A Brand.....	.82	1.33	1.28	7.00	7.92	8.79	1.00	1.71	2.01
Standard Complete Manure.....	3.30	3.56	4.04	8.00	9.70	6.92	7.00	6.94	6.81
Standard Fertilizer.....	2.00	2.44	2.23	8.00	10.00	6.34	2.00	2.67	3.14
Standard Guano.....	1.23	1.75	1.52	6.50	8.61	7.84	3.00	3.69	3.29
Stockbridge Corn and Grain Manure.....	3.25	3.21	3.54	8.00	7.93	9.47	4.25	5.23	4.72
Stockbridge Pea and Bean Manure.....	2.00	.....	2.93	6.00	.....	7.48	6.00	.....	10.04
Stockbridge Potato and Vegetable Manure.....	3.25	3.43	2.34	6.00	5.25	6.11	10.00	9.76	11.83
Stockbridge Seeding Down Manure.....	2.50	2.62	2.55	6.00	7.39	11.68	10.00	10.27	9.49
Stockbridge Top Dressing Manure.....	5.00	5.09	4.21	4.00	5.78	5.50	6.00	5.87	4.83
Sure Catch*.....	.....	.27	.25	6.00	6.86	5.92	4.00	6.37	3.59
Vegetable and Vine.....	1.60	1.96	1.73	6.00	6.25	6.68	8.00	7.96	8.42

* The manufacturers claim that this sample does not fairly represent their goods, as they guarantee but four per cent. potash.